

AMENDMENTS TO THE CLAIMS

1. (Currently amended) A method for determining a bound around a reference time such that the reference time is determined to have occurred between a first bound limit and a second bound limit, the method comprising the steps of:

transmitting a protected reference time request from a first computing device to a higher level computing device, wherein the higher level computing device is a level closer to a reference time source;

storing a transmittal time, according to a clock of the first computing device, when the protected reference time request was transmitted to the higher level computing device;

receiving a response from the higher level computing device at the first computing device, the response comprising a protected reference time source response, the reference time source response comprising the reference time, and a collection of protected reference time requests from each first level computing device that had transmitted the collection of protected reference time requests to the reference time source prior to the reference time;

storing a receipt time, according to the clock of the first computing device, when the response from the higher level computing device was received at the first computing device;

setting the first bound limit at [[a]] the transmittal time when the protected reference time request was transmitted to the higher level computing device; and

setting the second bound limit at [[a]] the receipt time when the response from the higher level computing device was received.

2. (Currently amended) A computer-readable storage medium having computer-executable instructions for determining a bound around a reference time such that the reference time is determined to have occurred between a first bound limit and a second bound limit, the computer-executable instructions performing steps comprising:

transmitting a protected reference time request from a first computing device to a higher level computing device, wherein the higher level computing device is a level closer to a reference time source;

storing a transmittal time, according to a clock of the first computing device, when the protected reference time request was transmitted to the higher level computing device;

receiving a response from the higher level computing device at the first computing device, the response comprising a protected reference time source response, the reference time source response comprising the reference time, and a collection of protected reference time requests from each first level computing device that had transmitted the collection of protected reference time requests to the reference time source prior to the reference time;

storing a receipt time, according to the clock of the first computing device, when the response from the higher level computing device was received at the first computing device;

setting the first bound limit at [[a]] the transmittal time when the protected reference time request was transmitted to the higher level computing device; and

setting the second bound limit at [[a]] the receipt time when the response from the higher level computing device was received.

3. (Canceled)

4. (Previously presented) The method of claim 1, wherein the reference time source is a distributed computing system implementing a Byzantine fault-tolerant consensus algorithm.

5. (Previously presented) The method of claim 1, wherein the protected reference time request and the protected reference time source response are protected through the use of encryption.

6. (Previously presented) The method of claim 1, wherein the protected reference time request and the protected reference time source response are protected through the use of a nonce.

7. (Previously presented) The method of claim 1 further comprising the steps of: receiving a second protected reference time request from a lower level computing device, wherein the lower level computing device is a level further from the reference time source; and incorporating the second protected reference time request into the protected reference time

request prior to transmitting the protected reference time request to the higher level computing device.

8. (Currently amended) The method of claim 7, wherein ~~the~~ transmitting the protected reference time request is postponed until a predetermined number of protected reference time requests are received from lower level computing devices.

9. (Currently amended) The method of claim 7, wherein ~~the~~ transmitting the protected reference time request occurred at pre-scheduled times, wherein at least one lower level computing device was informed of the pre-scheduled times if any lower level computing devices are present.

10. (Currently amended) The method of claim 1, wherein ~~the~~ transmitting the protected reference time request to the higher level computing device comprises transmitting the protected reference time request to at least two higher level computing devices; and wherein ~~further the~~ setting the second bound limit at the receipt time comprises setting the second bound limit at a first receipt time when a first response from the at least two higher level computing devices was received.

11. (Previously presented) The method of claim 1 further comprising the steps of: determining a rate of change of a system time with respect to the reference time; and setting the first bound limit and the second bound limit to account for the determined rate of change.

12. (Currently amended) The computer-readable storage medium of claim 2, wherein the reference time source is a distributed computing system implementing a Byzantine fault-tolerant consensus algorithm.

13. (Currently amended) The computer-readable storage medium of claim 2, wherein the protected reference time request and the protected reference time source response are protected through the use of encryption.

14. (Currently amended) The computer-readable storage medium of claim 2, wherein the protected reference time request and the protected reference time source response are protected through the use of a nonce.

15. (Currently amended) The computer-readable storage medium of claim 2, wherein the response from the higher level computing device is structured in accordance with a Merkle tree algorithm.

16. (Currently amended) The computer-readable storage medium of claim 2 having further computer-executable instructions performing steps comprising: receiving a second protected reference time request from a lower level computing device, wherein the lower level computing device is a level further from the reference time source; and incorporating the second protected reference time request into the protected reference time request prior to transmitting the protected reference time request to the higher level computing device.

17. (Currently amended) The computer-readable storage medium of claim 16, wherein ~~the~~ transmitting the protected reference time request is postponed until a predetermined number of protected reference time requests are received from lower level computing devices.

18. (Currently amended) The computer-readable storage medium of claim 16, wherein ~~the~~ transmitting the protected reference time request occurred at pre-scheduled times, wherein at least one lower level computing device was informed of the pre-scheduled times if any lower level computing devices are present.

19. (Currently amended) The computer-readable storage medium of claim 2, wherein the computer-executable instructions performing ~~the~~ transmitting the protected reference time request to the higher level computing device comprise computer-executable instructions for transmitting the protected reference time request to at least two higher level computing devices; and wherein ~~further~~ the computer-executable instructions performing ~~the~~ setting the second bound limit at the receipt time comprise computer-executable instructions for setting the second

bound limit at a first receipt time when a first response from the at least two higher level computing devices was received.

20. (Currently amended) The computer-readable storage medium of claim 2 having further computer-executable instructions performing steps comprising: determining a rate of change of a system time with respect to the reference time; and setting the first bound limit and the second bound limit to account for the determined rate of change.

21. (Canceled)